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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FERRIS III, FRED O

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/771,115

Applicant(s)SHROPSHIRE, ARTHUR
EDWARD**Examiner**

Fred Ferris

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 17-25 is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. *Claims 1-25 have been presented for examination based on applicant's amendment filed on 9 November 2004. Claims 17-25 have now been allowed over the prior art of record. Claims 1-16 remain rejected based on new grounds for rejection.*

Response to Arguments

2. *Applicant's amendment to the claims and arguments filed on 9 November 2004 have been fully considered.*

Regarding applicant's response to objection to the drawings: *The examiner concurs with applicant's arguments that assignment of elements and the permissible relationship of modules, while not specifically shown in the drawings, are sufficiently demonstrated when considering Tables 1 and 2 of the specification in context with drawings 3a and 3b. The examiner therefore withdraws the objection to the drawings.*

Regarding applicant's response to 112(1) rejection: *The examiner withdraws the 112(1) rejection in view of applicant's amendment to the claims and arguments submitted on 9 November 2004.*

Regarding applicant's response to objection to the specification: *The examiner concurs with applicant's arguments that the CAPITOL H system reference is simply directed to a commercially available software product available at the time of the invention and not an attempt at incorporation by reference. The examiner withdraws the objection to the specification in view of applicant's arguments.*

Regarding applicant's response to 102(b) rejections (Ishikawa & Billsdon): The examiner withdraws the previous 102(b) rejections (Ishikawa & Billsdon) in view of applicant's amendment to the claims and arguments filed 9 November 2004. However, the examiner has now applied new 103(a) rejections to amended claims 1-16 based on new grounds for rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over "Wiring Harness Design can a Computer Help?" R. Billsdon, Computing and Control Engineering Journal, IEEE, August 1998 in view of U.S. Patent 5,610,454 issued to Nishikawa et al.

Regarding independent claim 1: Billsdon discloses the Raychem Corporation's **HarnWare computer-aided wiring harness design system**. Harnware contains a **library of intelligent harness drawing shapes** (i.e. core harnesses) and **catalogues wiring harness products**. Using HarnWare a designer makes decisions about **wire size, routing, connector selection, shielding requirements and operating environment**, and Harnware will use this information to (automatically) **select the right sized components**. Shapes representing harnessing products are **dragged and dropped** into the **drawing, automatically snapping and gluing together**. That is, HarnWare provides creating/storing data for wiring harness design with module data representing wire and component element requirements to create a harness and stores design data of all relative harness elements (See pages 163-164, Figs. 1, 3, 4).

Dimensions and connector references (elements/attributes) are entered by **clicking a shape and typing** in the relevant information. That is, the data representing harness elements is associated with multiple harness modules. (Fig. 3-5, pages 165-166) The system **automatically traces on screen the route of each wire in the point-to-point wire list through the harness geometry, calculates wire lengths**, determines the **best positioning** of mixed-diameter wires in each harness leg and outputs bundle diameters. (i.e. optimum routing, Fig. 5) A complex harness design can be finalized and documented, including a **drawing** (see figure 2), **bill of materials, labor estimate and wire list**. Harnware can generate harness documentation in several languages. (Pages 166-167, Figs. 1-5)

Billsdon does not explicitly disclose the ability associate element data with multiple modules used together as assigned to only one part of the module but having its data associated with each of the multiple modules. (Although the examiner is of the opinion that this feature is in fact available in the HarnWare software, but simply not disclosed in the Billsdon document)

Nishikawa also discloses creating/storing data for wiring harness design with module data representing wire and component element requirements to create a harness and stores design data of all relative harness elements. But more importantly discloses the ability to associate various harness design elements as common, dedicated, selectable elements within the design of the harness module. (CL5-L13-55, CL6-L9-55, CL11-L2-25, Figs. 5-8, Tab.1- 4) That is, Nishikawa teaches a system with the ability to associate harness element data with multiple modules that are used together and assigned to only one part of the module, (i.e. as common, dedicated, or selectable) but have data associated with each of the multiple modules. (CL2-L36-67, CL3-L3-49)

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Billsdon relating to creating/storing data for wiring harness design with module data representing wire and component element requirements, with the teachings of Nishikawa relating to associating harness element data with multiple modules that are used together, to realize the claimed invention. An obvious motivation exists since, in this case, the Billsdon reference teaches to the Nishikawa reference, and the Nishikawa reference

teaches to the Billsdon reference. Specifically, both Billsdon and Nishikawa teach creating/storing data for wiring harness design and are used in the same technological arena as noted above. Billsdon teaches to Nishikawa because Billsdon teaches representing wire and component elements create a harness (See: Billsdon, pages 163-167, Figs. 1-5). Nishikawa teaches to Billsdon because Nishikawa specifically teaches associating harness element data with multiple modules that are used together and assigned to only one part of the module. (See: Nishikawa: CL2-L36-67, CL3-L3-49, Figs. 5-8, Tabs. 1-4) Further, the level of skill required by an artisan to realize the claimed limitations of the present invention is clearly established by both references. (See: Billsdon/Nishikawa, Intro/Abstract) Accordingly, a skilled artisan having access to the teachings of Billsdon and Nishikawa, would have knowingly modified the teachings of Billsdon with the teachings of Nishikawa (or visa versa) to realize the claimed elements of the present invention while reducing the cost and development time.

Regarding dependent claims 2-16: *Dependent claims include limitations relating to virtual/physical harness modules, the data relationship between harness modules, and automatic assignment/verification of attributes all of which have been disclosed in the prior art as previously cited above. Billsdon teaches a virtual harness (Figs. 2, 3-5) inclusive of manual/automatic selection, incompatible parts, relationships between elements, and specifying harness element assignment (Pages 163-167, Figs. 1-5) as noted above. Nishikawa teaches associating and assigning harness element data as common, dedicated, selectable elements within the design of the harness module (CL2-*

L36-67, CL3-L3-49) and would have knowingly been incorporated by a skilled artisan using the reasoning previously cited above.

Allowable Subject Matter

4. Claims 17-25 have been allowed over the prior art of record.

The following is an examiners statement of reasons for allowance:

Applicants are disclosing a computer based system for creating a wiring harness design where module data is created for harness modules representing wire and component elements based on various options so that the modules can be assembled by selected (optional) combinations to create a complete harness. These features are generally disclosed in the prior art. However, the prior art of record, while generally disclosing these features, does not meet the conditions as suggested in MPEP section 2132, namely:

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

In this case, the prior art of record does not disclose the specific arrangement of elements relating to a virtual parent harness representation of all modules available for designing the physical harness, association by permissible relationship between modules as defined by applicant's specification (pp. 10-18, tables 1-3), or a core module

in the physical harness of only one core module corresponding to the modular wiring harness design, as disclosed within the context of independent claims 17, and 19.

The closest prior art of record uncovered during examination discloses various techniques for wiring harness design. For example:

- U.S. Patent 6,457,165 issued to Ishikawa et al discloses a wiring harness design system that creates and stores design data of relative harness elements including the relationship between modules with automatic harness calculations and verification. Ishikawa does not explicitly disclose a virtual parent harness representation of all modules available for designing the physical harness, association by permissible relationship between modules as defined by applicant's specification (pp. 10-18, tables 1-3), or a core module in the physical harness of only one core module corresponding to the modular wiring harness design.

- "Wiring Harness Design can a Computer Help?" R. Billsdon, Computing and Control Engineering Journal, IEEE, August 1998 discloses Raychem Corporation's HarnWare computer-aided wiring harness design system which includes, a library of intelligent harness drawing shapes (i.e. core harnesses), automatic on screen tracing of point-to-point wire routes, harness geometry and wire lengths calculation, and best positioning. However, Billsdon also does not explicitly disclose a virtual parent harness representation of all modules available for designing the physical harness, association by permissible relationship between modules as defined by applicant's specification (pp. 10-18, tables 1-3), or a core module in the physical harness of only one core module corresponding to the modular wiring harness design.

Dependent claims 18, and 20-25 are deemed allowable as being dependent from independent claims 17, and 19 respectively.

Conclusion

5. *Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).*


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the

Art Unit: 2128

examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

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April 7, 2005


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